

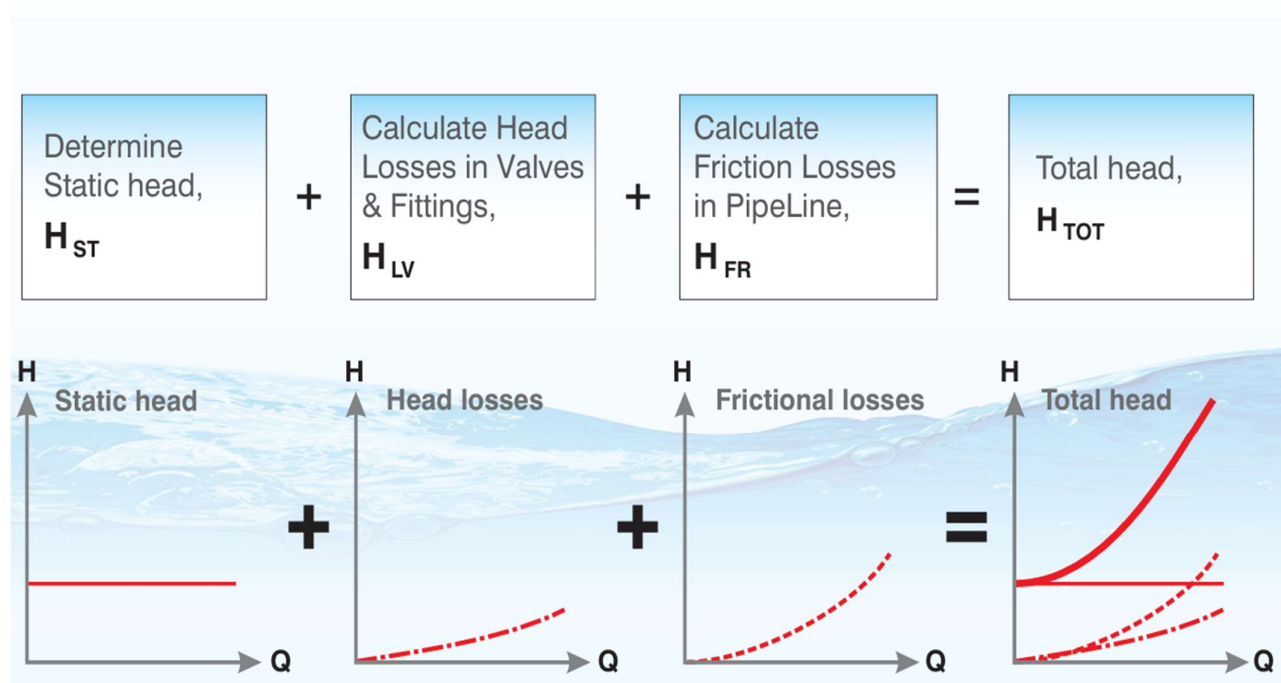
13th June, 2026

Q : How will a Single Pumpset (or a Pumping Station with all similar pumpsets) behave when it is used to Transfer water to Various Different Locations ..?

A : We have to Understand :

- What is head (energy) : The Total Energy of Fluid – either in form of Static (Geoditic) or in form of Head Losses or in form of Frictional Losses. Please note that Head has two aspects :
 - **System Resistance** : (head) to be **Overcome** (i.e. **Effort** to be done by fluid (ultimately to be developed by pump)) to Transfer Fluid satisfactorily to desired disposal point
 - **Pump Energy** : (head) Energy Developed by Pump
 - **Check Point** :
 - the Energy (Head) Developed by the Pump should always be more than the **Static** Head for Water to be Transferred.
 - the Energy (Head) Developed by the Pump should always be more than the Total System Resistance (head) for Water to be Transferred at DESIRED (or Higher) Flow Rate.

Steps to Calculate System Head (Resistance)



Whenever, the pump is to do Duty at Multiple Locations (i.e. Systems); we have to make Multiple System Resistance Curves.

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However, as a rule of thumb, some guidelines are given as below :

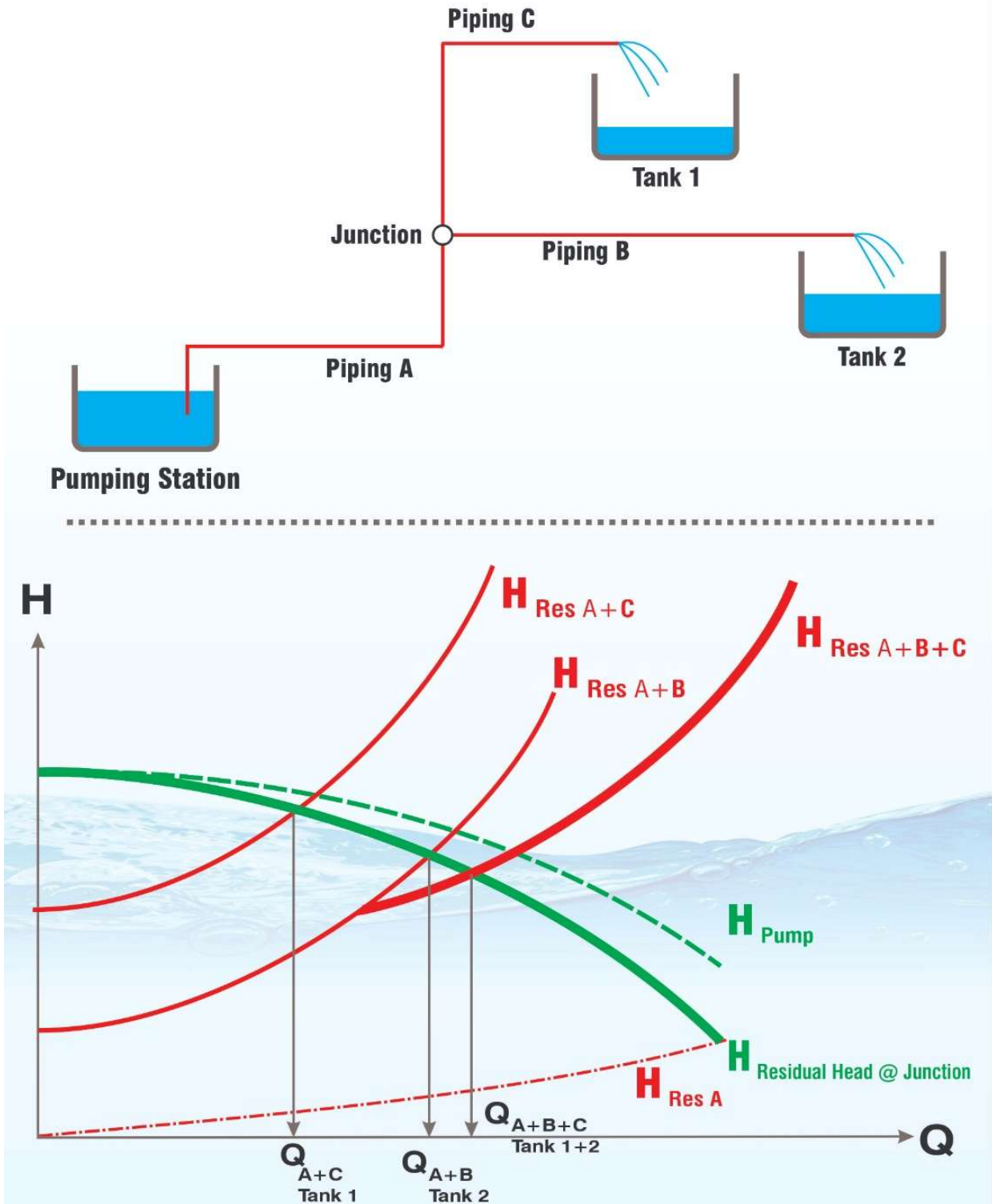
- **Discharge at Different Elevations (Static Head Changes) :**
 - If the same pump discharges to different points having different elevations:
 - **Higher** discharge point (Higher Static head) : System & Pump flow **decreases**.
 - **Lower** discharge point (Lower Static head) : System & Pump flow **increases**.
- **Discharge Through Pipelines of Different Lengths &/or Diameters :**
 - Changing the pipeline changes friction losses:
 - Longer or Smaller diameter pipe : Higher friction losses & System/ Pump Flow Decreases
 - Shorter or Longer diameter pipe : Lower friction losses & System/ Pump Flow Increases
- **Discharging to Multiple Different Points/ Locations**
 - If a single pump is connected to a manifold and can discharge parallel/ simultaneously to different destinations:

Discharge Point	System Resistance	System FLOW Rate
Nearby Point - Same Elevation	Low	High
Far Away Point - Same Elevation	Medium	Medium
Far Away Point - High Elevation	High	Low

- The pump automatically tries to settle at an Operating Point where its H-Q curve intersects the respective system curve. The effect on the Pump **will Not be Directly Related** to whether it pushes water into a single or multiple tanks – **it will be dependent upon** the Back Pressure (head) imposed onto the Pump by the System & the **Resultant Flow per pump**.
 - ! However, please note that irrespective of Total System Resistance, if the Pump’s Shut Off head is Lower than the Static head to be overcome – No Water will be transferred at all...! Hence, for Single Pump discharging into Multiple reservoirs; ensure that the Maximum Static Head of All & Any system is always well covered by the pump.
- Upon request from RH/ SH, our Design Department can assist Client in Detailed System Pump Interaction Calculations which will help :
 - Optimize Energy,
 - Pumpset’s Long Term Reliability,
 - Avoiding Unnecessary Head Losses,
 - Avoiding a Variety of Pump Configurations, etc.

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Single Pumping Station serving Multiple Tanks



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